

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 05-157701

(43)Date of publication of application : 25.06.1993

(51)Int.Cl.

G01N 21/88

G02B 27/00

H01L 21/66

(21)Application number : 04-024852

(71)Applicant : INTERNATL BUSINESS MACH  
CORP <IBM>

(22)Date of filing : 14.01.1992

(72)Inventor : BATCHELDER JOHN S  
HOBBS PHILIP C D  
TAUBENBLATT MARC A

(30)Priority

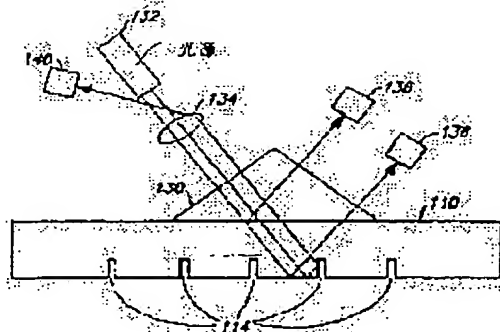
Priority number : 91 667773 Priority date : 11.03.1991 Priority country : US

## (54) OPTICAL INSIDE INSPECTION ASSISTING EQUIPMENT AND ITS METHOD

(57)Abstract:

PURPOSE: To simply and surely detect fine feature inside an object to be inspected, by coupling an optical matching means having a refractive index nearly equal to the one of the object to be inspected with the surface of the object to be inspected, via an optical coupling means having an incident angle larger than or equal to the critical angle.

CONSTITUTION: A silicon prism 130 is made to hold the contact with a silicon wafer 110. An infrared ray source 132 is so arranged that a comparatively narrow infrared beam is cast on both prism 130 via a lens 134. The incident angle of a light is so selected that all of the internal reflections are generated from the a wafer 110 surface and a trench 114 wall. An infrared detector 136 collects the reflected light from the wafer 110 surface. An infrared detector 138 detects the reflected light from the boundary surface between the prism 130 and the wafer 110. An infrared detector 140 receives the reflected light from the trench 114 wall. A signal of the detector 138 is used as a control signal to the detector 140, in order to reduce the error due to insufficient contact.



## LEGAL STATUS

[Date of request for examination] 14.01.1992

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than

the examiner's decision of rejection or  
application converted registration]

[Date of final disposal for application]

[Patent number] 1987116

[Date of registration] 08.11.1995

[Number of appeal against examiner's decision  
of rejection]

[Date of requesting appeal against examiner's  
decision of rejection]

[Date of extinction of right] 06.03.1999

Copyright (C); 1998,2003 Japan Patent Office